-	1	09/839974	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 10:09
-	6147	TV near2 programs	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 10:10
-	216	(TV near2 programs) and (select$ near3 program).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 10:10
-	8	((TV near2 programs) and (select$ near3 program).ti.) and (sort$ same program)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:03
-	1	5880768.pn. and database	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:17
-	0	4706121.pn. and sort	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:05
-	0	4706121.pn. and sort$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:05
-	0	4706121.pn. and rank$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:06
-	0	(5880768.pn. and database) and logical	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:06
-	6147	TV near2 programs	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:17
-	600	(TV near2 programs) and (database with programs)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:18
-	14	((TV near2 programs) and (database with programs)) and (sort$ with (select$ near2 program))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:19
-	26	((TV near2 programs) and (database with programs)) and (sort$ with program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:49

-		13	((TV near2 programs) and (database with programs)) and (sort$ with database)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:23
-		53	(TV near2 programs) and (director same program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:49
-		28	((TV near2 programs) and (director same program)) and (language same program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:50
-		28	(((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:50
-		22	((((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)) and (format same program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:50
-		0	(((((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)) and (format same program)) and (seasonal near2 content)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:51
-		0	((((((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)) and (format same program)) and season) and maturity	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:51
-		0	((((((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)) and (format same program)) and season) and (call near2 sign)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:51
-		2	(((((TV near2 programs) and (director same program)) and (language same program)) and (rat$3 same program)) and (format same program)) and season	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:54
-		0	(TV near2 programs) and ((call near2 sign) same program) and (maturity near2 rat$3)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:55
-		0	(TV near2 programs) and (maturity near2 rat$3)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 11:55
-		11	(TV near2 programs) and ((call near2 sign) same program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 12:37
-		1	6268849.pn. and select	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 12:46
-		0	6268849.pn. and compar$	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 12:46
-		0	6268849.pn. and match	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 13:50
-		0	09/839974.pn.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 13:50

-	0	09/839,974.pn.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 13:50
-	1	09/839,974	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 13:50
-	0	09/839,974 and bar$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:02
-	0	09/839,974 and barre	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:03
-	6147	TV near2 program	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:03
-	66	(TV near2 program) and barre$	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:13
-	0	(TV near2 program) and barre$ and (preferre$ near4 attribute)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:05
-	0	(TV near2 program) and (barre$ near4 attribute)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:05
-	152283	barred nearr2 attributes	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:17
-	644	(TV near2 program) and (barred nearr2 attributes)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:13
-	268	(TV near2 program) and (barred nearr2 attributes)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:13
-	67	((TV near2 program) and (barred nearr2 attributes)) and sort$	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:13
-	64	(((TV near2 program) and (barred nearr2 attributes)) and sort$) and user	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:14

-	34	((((TV near2 program) and (barred nearr2 attributes)) and sort$) and user) and (select$ near2 program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:15
-	35	(((TV near2 program) and (barred nearr2 attributes)) and sort$) and (select$ near2 program)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:17
-	0	(((TV near2 program) and (barred nearr2 attributes)) and sort$) and (select$ near2 program) and barre	USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:17
-	1	barred near2 attributes	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:17
-	4	(TV near2 program) and barred	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:31
-	2	4706121.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:36
-	2	6172674.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:36
-	1	6172674.pn. and sort	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/03/19 14:36

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(54) METHOD AND SYSTEM FOR PRESENTING PROGRAMS TO A USER THAT FACILITATE SELECTING PROGRAMS FROM A MULTITUDE OF PROGRAMS

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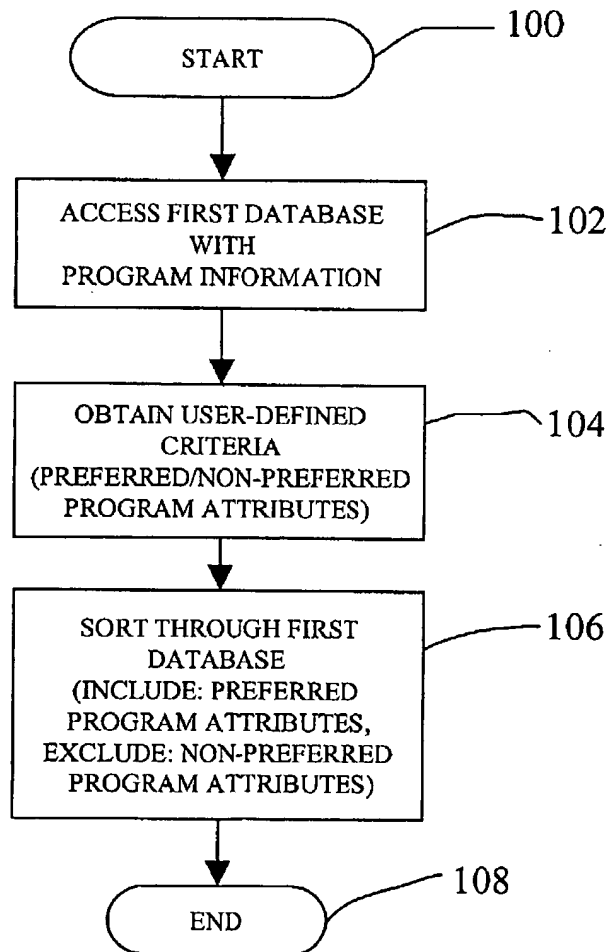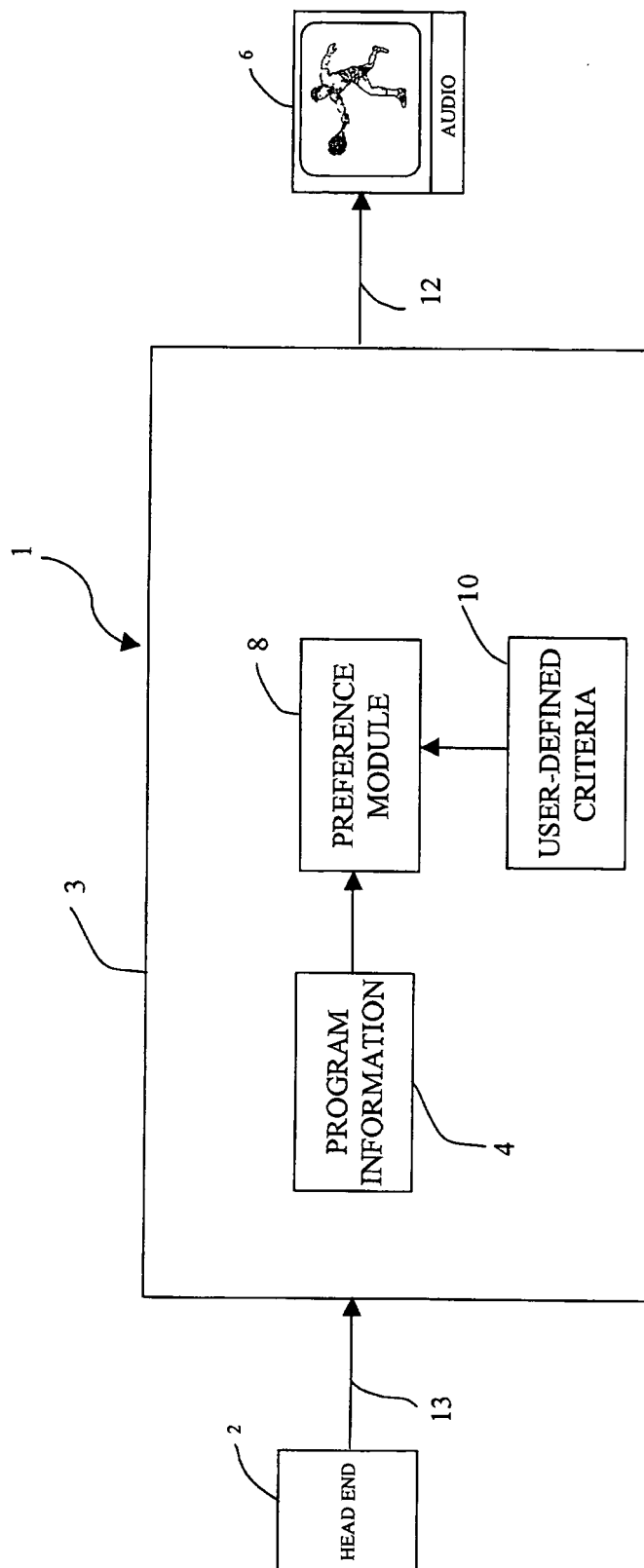
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(57) **ABSTRACT**

An audio/video ("A/V") apparatus for selecting programs from a plurality of programs includes a memory, which receives and stores program information describing a plurality of programs through program attributes, and a source of user-defined criteria. The user-defined criteria identify preferred program attributes and non-preferred program attributes. The A/V apparatus includes further a preference module configured to sort through the program information to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

Figure 2

100 — START

102 — ACCESS FIRST DATABASE WITH PROGRAM INFORMATION

104 — OBTAIN USER-DEFINED CRITERIA (PREFERRED/NON-PREFERRED PROGRAM ATTRIBUTES)

106 — SORT THROUGH FIRST DATABASE (INCLUDE: PREFERRED PROGRAM ATTRIBUTES, EXCLUDE: NON-PREFERRED PROGRAM ATTRIBUTES)

108 — END

FIGURE 3

ATTRIBUTE SCRIPT 1 OF 3 FOR USER #1

MPAA RATING 83

G
PG
PG-13
R
NC-17

PREFERRED: 80

ACTOR:
DIRECTOR:
TITLE:

NON-PREFERRED: 84

ACTOR:
DIRECTOR:
TITLE:

1930-1939

ERA 86

CRITICAL RATING 78

*****
****
***
**
*

CHANNEL: ALL 82

GENRE 74

☐ ACTION 76
☐ ADVENTURE 76
☐ DRAMA
☐ COMEDY
☐ WESTERN
☐ ADULT
☐ CARTOONS
☐ DOCUMENTARY 76

70
70
70

FIGURE 4

ATTRIBUTE SCRIPT # 1

TO DO
92

RECORD
LIST

93
ALL

GENRE
94

ACTION
DRAMA
COMEDY
WESTERN
ADULT
CARTOONS

95
WITH

ROLE
96

ACTOR
DIRECTOR

NAME 1
98

CLARK GABLE
..
GRACE KELLY
SPENCER TRACY

AND   WITHOUT
97

NAME 2
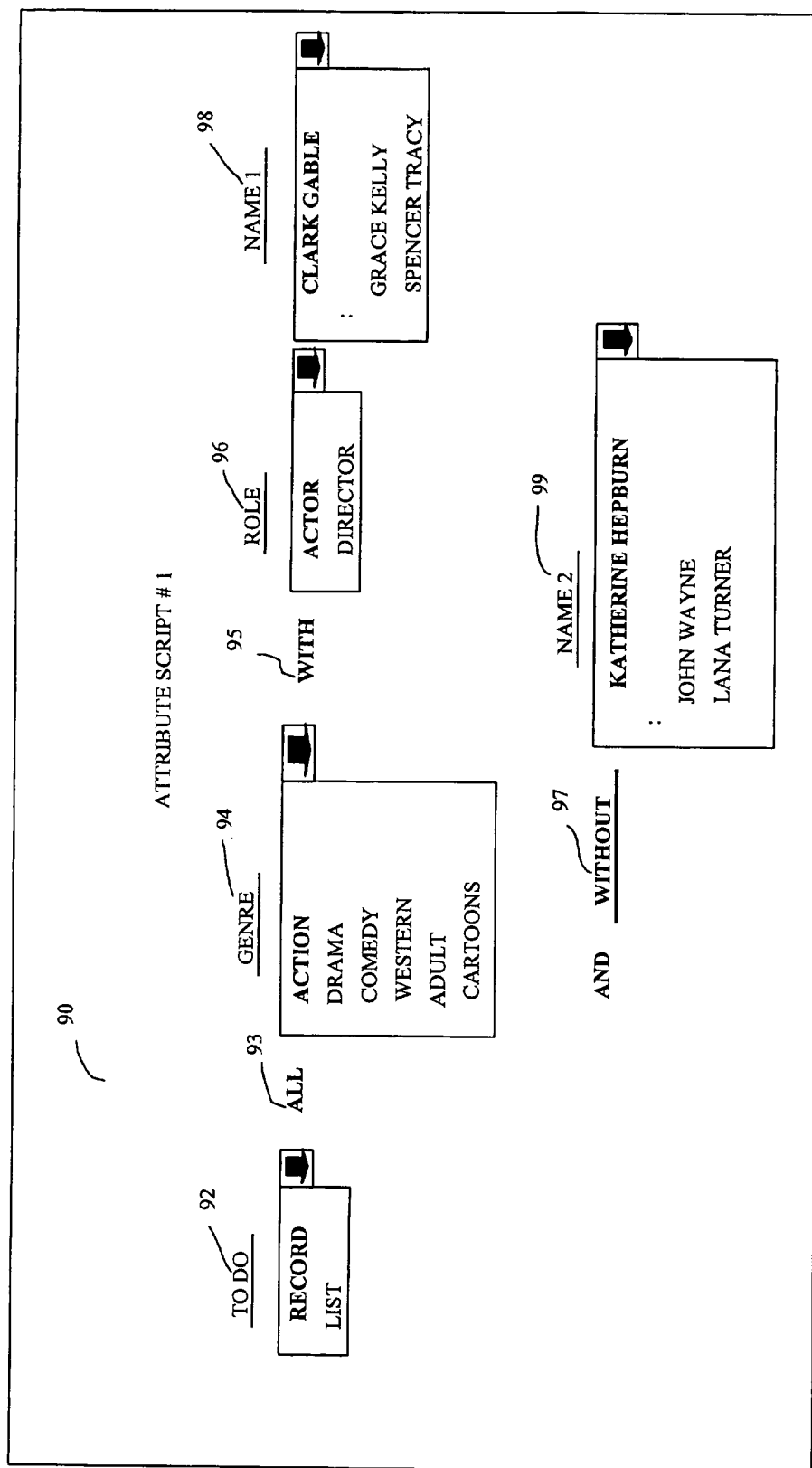99

KATHERINE HEPBURN
..
JOHN WAYNE
LANA TURNER

90
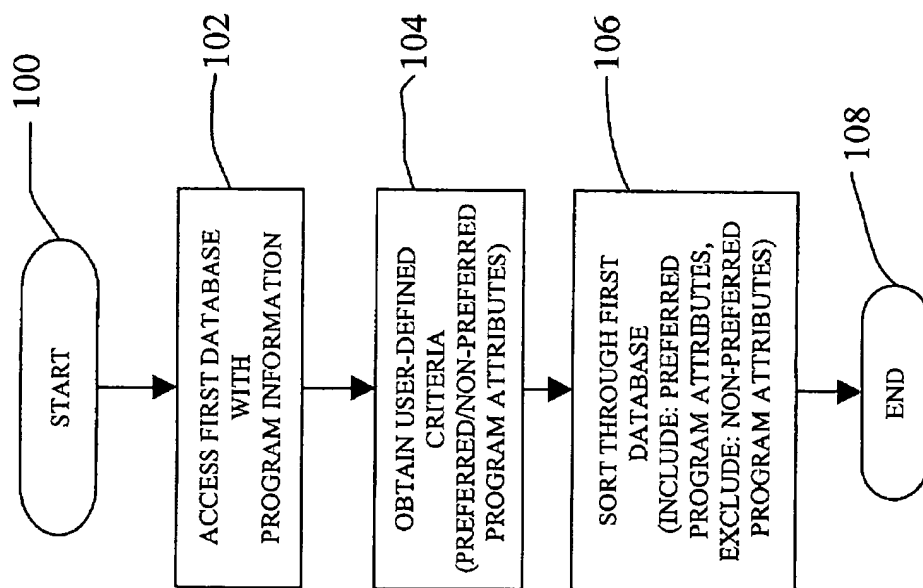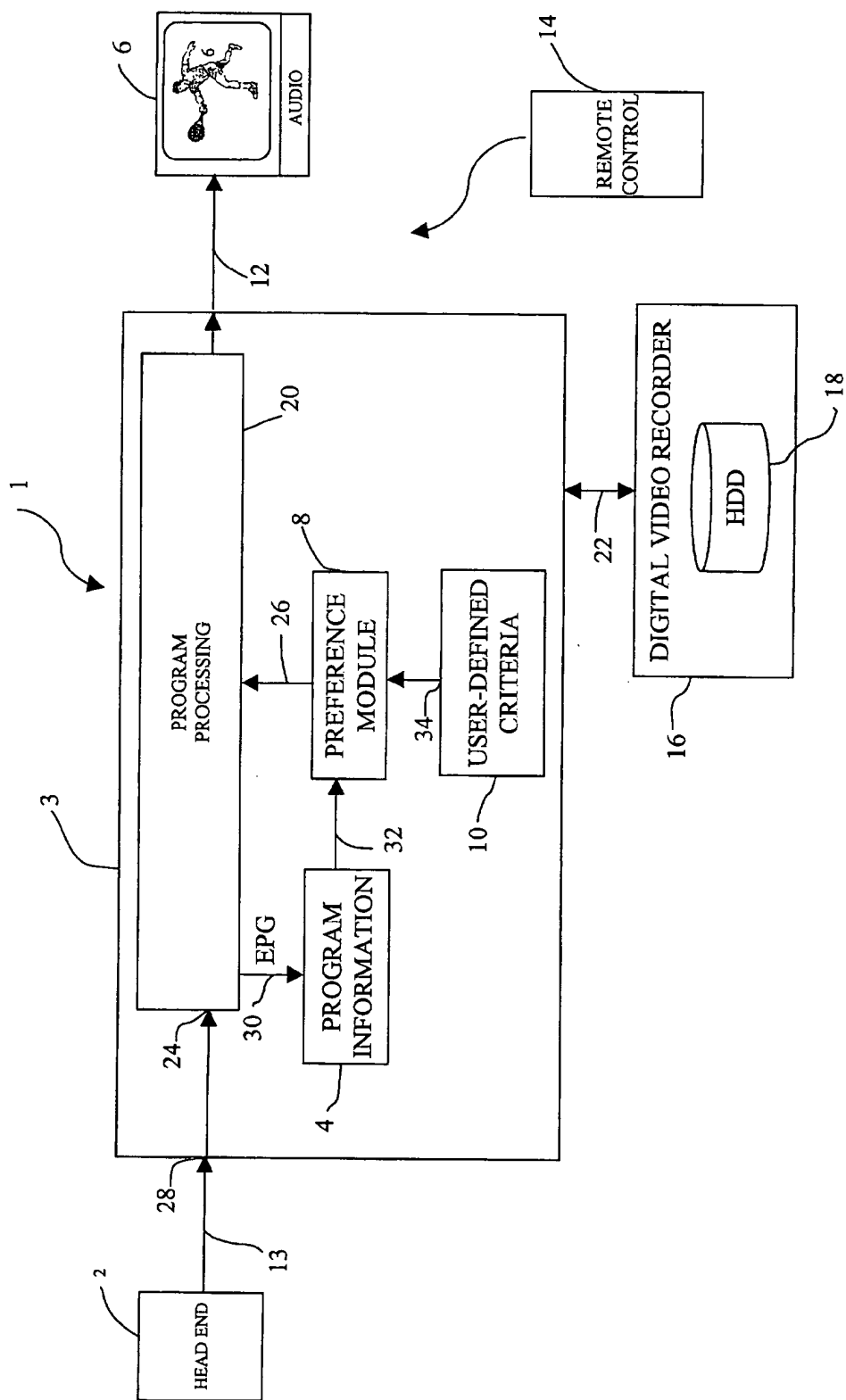
FIG. 5

METHOD AND SYSTEM FOR PRESENTING PROGRAMS TO A USER THAT FACILITATE SELECTING PROGRAMS FROM A MULTITUDE OF PROGRAMS

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The invention relates to a system for presenting programs to a user. More particularly, the invention relates to a system and a method for presenting programs to a user that facilitate selecting programs from a multitude of programs.

[0003] 2. Description of the Related Art

[0004] A conventional system for displaying a program, e.g., a video program, includes a monitor or a television (TV) set connected to a set top box. The set top box is connected through a coaxial cable to a cable TV network or a satellite dish for "satellite TV." The TV set and the set top box are located, for example, in a user's home and receive a multitude of TV channels from a broadcast head end, wherein each TV channel has a multitude of programs during a typical day. In order to select and watch a certain program, the user controls, for example, the set top box to tune to a desired channel. The TV set receives a video signal from the set top box and displays the program of the desired channel.

[0005] A user may expand the system by connecting a video recorder to the TV set and the set top box to personalize television viewing by recording a program and watching it when it is convenient for the user. For instance, the video recorder may be a digital video recorder that includes a hard disk drive with a storage capacity of between 10 GB and 30 GB for recording of up to 30 hours of television programming. Further, the user may subscribe to and receive premium content such as subscription channels, pay-per-view services or video-on-demand services in order to watch a movie on a certain day and at a time of day for which the user has to pay a per-movie fee. The user may further personalize television viewing by subscribing to services such as ReplayTV (offered by Replay Network) and TiVo (offered by Philips).

[0006] The conventional system enables the viewer to receive a multitude of programs from which the user can select preferred programs, for example, for watching as "live" TV or for recording. Although the user may use program guides in paper or electronic format, or may "surf" through the programs, the number of program channels, potentially hundreds of program channels, make a program selection tedious and very time consuming. There is therefore a need to improve upon the prior art technique for presenting programs to a user so that the user's selection of preferred programs is facilitated.

SUMMARY OF THE INVENTION

[0007] The present invention may be regarded as method of selecting programs from a plurality of programs. The method accesses a first database that includes program information describing the plurality of programs through program attributes. The method obtains user-defined criteria identifying preferred program attributes and non-preferred program attributes and sorts through the first database to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

[0008] The present invention may further be regarded as an audio/video ("A/V") apparatus for selecting programs from a plurality of programs. The A/V apparatus includes a memory, which receives and stores program information describing a plurality of programs through program attributes, and a source of user-defined criteria. The user-defined criteria identify preferred program attributes and non-preferred program attributes. The A/V apparatus includes further a preference module configured to sort through the program information to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] These and other aspects, advantages, and novel features of the invention will become apparent upon reading the following detailed description and upon reference to the accompanying drawings. In the drawings, same elements have the same reference numerals.

[0010] FIG. 1 shows a system for displaying video data in accordance with an embodiment of the present invention that includes an audio/video apparatus interconnected between a head end and a audio/video device, wherein the audio/video apparatus includes a preference module that sorts through stored program information, which describes a plurality of programs through program attributes, to determine a program having program attributes that include preferred program attributes and exclude non-preferred program attributes as provided by a source of user-defined criteria.

[0011] FIG. 2 is a flowchart of a procedure illustrating the method in accordance with an embodiment of the present invention that accesses a first database that includes program information describing the plurality of programs through program attributes and obtains user-defined criteria identifying preferred program attributes and non-preferred program attributes in order to sort through the first database to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

[0012] FIG. 3 shows a system for displaying video data in accordance with a further embodiment of the present invention that includes the audio/video apparatus interconnected between a head end and an audio/video device and connected to a digital video recorder.

[0013] FIG. 4 illustrates an embodiment of a menu displayable on the audio/video device and permitting a user to set up an attribute script.

[0014] FIG. 5 illustrates a further embodiment of a menu displayable on the audio/video device and permitting a user to set up an attribute script.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0015] FIG. 1 illustrates an embodiment of a system 1 for presenting content (e.g., video programs, audio programs, graphics, images, text, or data content) from a content

provider to a user in accordance with an embodiment of the present invention. The system 1 is configured to operate in accordance with the method of the present invention. Hereinafter, the term "program" is used to refer to the various kinds of content available from the content provider, and the term "watching" is used to refer to the user's acts of watching, listening, reading or viewing.

[0016] The system 1 includes a head end 2 and an audio/ video ("A/V") apparatus 3 coupled to the head end 2 via a network 13. The head end 2 may be under control of the content provider, which may be a multiple service provider ("MSO") as known in the art. The A/V apparatus 3 is coupled via a connection 12 to an audio/display device 6 that presents selected programs to a user. The A/V apparatus 3 includes a memory 4 to receive and store program information describing programs through program attributes, a source 10 of user-defined criteria, and a preference module coupled to the memory 4 and the source 10 in order to sort through the program information as described hereinafter.

[0017] FIG. 2 is a flowchart of a procedure illustrating the method in accordance with the present invention that selects programs from a plurality of programs to facilitate the user's selection of programs from the multitude of programs. Whenever the method is active, for example, when the A/V apparatus 3 periodically executes the procedure, when the user triggers the procedure during a viewing session, or when the user turns the audio/video device 6 on, the method generates a selection of preferred programs for presentation to the user or for selective recording. The selective recording may be automated.

[0018] In a step 100, the procedure initializes the system 1 and executes routine procedures to determine whether the system 1 is operating and properly connected. Further, the routine procedures determine if the memory 4 includes a database with the program information and if the source 10 is ready to provide the user-defined criteria.

[0019] In a step 102, the method accesses the database that includes the program information describing the plurality of programs through program attributes. The program information may be an electronic program guide received from the head end 2 and stored within the A/V apparatus 3. As known in the art, the electronic program guide lists scheduled programs for a predetermined period of time (e.g., two weeks) and provides, among others, information about broadcast dates and times and content information. For example, the program attributes include the content information, which describes for each program the channel, the actor, the director, the title, the genre, the language, the rating (critical rating and audience rating as described below), the callsign, the play content, the year of production, the multi-part format and the seasonal content. Further, the program attribute "genre" may include "Action,""Adventure,""Western,""Drama,""Thriller,""Comedy,""Musical, ""Adult,""Cartoons,""Animation," etc.

[0020] In a step 104, the method obtains user-defined criteria that identify preferred program attributes and non-preferred program attributes of a user. For example, the user-defined criteria identify the user's preferred genre (e.g., Action, Adventure) and the user's non-preferred genre (e.g., Musical, Cartoons). The user-defined criteria may further identify the user's preferred actors within the preferred genre, as well as the user's non-preferred actors within the

preferred genre. The user may define the user-defined criteria through a menu and an attribute script as shown in FIGS. 4 and 5.

[0021] In a step 106, the method sorts through the first database to determine a program having program attributes that include the preferred program attributes and that exclude the non-preferred program attributes. The method uses logical AND and logical NOT operations to sort through the first database, which permit the method to include programs that match the user's preferences as defined through the preferred program attributes and to exclude programs that do not match user's preferences as defined through the non-preferred program attributes. The procedure ends at a step 108.

[0022] Upon sorting through the first database, the programs determined by the procedure may be entered into a list. The list may be converted into a menu that the audio/ video device 6 displays and that permits the user to select programs for watching as a "live" program or for recording for deferred watching. For example, if the user wants to watch a program, the user may "click" on the desired program and the A/V apparatus 3 and the audio/video device 6 present the desired program to the user. Likewise, if the user wants to record a program, the user "clicks" on the desired program and the A/V apparatus 3 and a video recorder (e.g., a digital video recorder shown in FIG. 3) record the desired program.

[0023] In addition to this user-initiated selection from the menu, the A/V apparatus 3 may be configured to automatically record at least one of the programs included in the menu. For example, the menu may list the selected programs in a hierarchy (e.g., the "Top 10" programs) and the A/V apparatus 3 may automatically trigger recording of the highest ranked program within the "Top 10" programs. If no time conflicts exist among the "Top 10" programs, the A/V apparatus 3 may trigger recording of one or more of the next highest ranked programs.

[0024] FIG. 3 shows a system 1 for displaying video data in accordance with a further embodiment of the present invention. The system 1 of FIG. 3 is similar to the system 1 of FIG. 1 and includes the audio/video apparatus 3 interconnected between the head end 2 and an audio/video device 6. In addition, the system of FIG. 3 includes a digital video recorder 16 connected to the A/V apparatus 3 via a connection 22, and a remote control 14. The digital video recorder 16 includes a storage medium, such as a hard disk drive 18 ("HDD").

[0025] The A/V apparatus 3 includes the memory 4, the source 10, the preference module 8 and a program processing module 20. An input 24 of the program processing module 20 is connected to an input 28 of the A/V apparatus 3. The memory 4 is connected to the program processing module 20 via a connection 30. The preference module 32 is connected to the memory 4 via a connection 32, to the source 10 via a connection 34, and to the program processing module 20 via a connection 26.

[0026] In one embodiment, the A/V apparatus 3 is configured to generally perform the function of a conventional set top box. Therefore, the program processing module 20 represents for illustrative purposes the part of the A/V apparatus 3 that performs the functions of the conventional

set top box. As known in the art, the functions of a set top box include, among others, tuning to a certain program channel, and processing and formatting a selected program for display on the audio/video device **6**. Further details of a set top box are disclosed in copending U.S. patent application Ser. No. 09/605,623, filed on Jun. 28, 2000 and entitled "Set-Top Box Connectable To A Digital Video Recorder Via An Auxiliary Interface And Selects Between A Recorded Video Signal Received From The Digital Video Recorder And A Real-Time Video Signal To Provide Video Data Stream To A Display Device," the whole content of which is incorporated by reference herein.

[0027] In addition to the functions of a conventional set top box, the A/V apparatus **3** is configured to perform the functions in accordance with the present invention. The program processing module **20** extracts the electronic program guide ("EPG") from broadcast signals received from the head end **2**, via the network **13** or via a modem (not shown), or from other sources such as the Internet, and loads the EPG into the memory **4**. The stored EPG within the memory **4** may be updated periodically (e.g., daily), whenever a new version of the EPG is available (e.g., biweekly), or whenever the A/V apparatus **3** is activated.

[0028] The source **10** of user-defined criteria is in one embodiment also a memory that stores the user-defined criteria. The source **10** is associated with a user interface (not shown) which permits the user to load the user-defined criteria into the source **10**. The user interface is associated with a graphical user interface and an input device. For example, the audio/video device **6** may serve as graphical user interface and the remote control **14** or a keyboard may serve as input devices.

[0029] The user may input the user-defined criteria during initial set up of the A/V apparatus **3** to define a general user profile. The user may modify the general user profile at a later time to adapt the criteria to the user's changing preferences. Also, the user may modify the general profile at the beginning of a viewing session to adapt the criteria to a present preference, for example, existing on a Saturday evening. Further, the A/V apparatus **3** permits several users, e.g., the members of a family, to define individual user profiles. Each user may further define more than one user profile, e.g., a profile for weekends and a profile for weekdays, or different profiles for different genres (e.g., an "action movie profile" or a "comedy profile").

[0030] The preference module **8** is coupled to the memory **4** and to the source **10** and has access to the data stored therein. The preference module **8** implements the procedure illustrated in FIG. 2 and is hereinafter referred to as advanced recommendation engine ("ARE"). The ARE sorts through the program information stored in the memory **4** to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes as defined by a currently active user profile. The result of this sorting through the program information is presented to the user as the list.

[0031] The A/V apparatus **3** may be set up to activate the ARE automatically or upon user input. That is, the A/V apparatus **3** may activate the ARE every time the user activates the A/V apparatus **3**, every time the data of the memory **4** or the source **4** changes, or periodically after predetermined interval (e.g., two hours). Further, the user

may activate the ARE during a viewing session, for example, to decide whether or not to change a channel. The user may also define a current profile and activate the ARE. For example, the user may modify or override the general user profile and define the following profile:

[0032] GENRE: Action, Adventure

[0033] Preferred Actor(s): Clint Eastwood

[0034] Non-Preferred Actor(s): Sandra Locke

[0035] Era: 1970-1980

[0036] The ARE interprets this user profile as "show me all action or adventure movies with Clint Eastwood but not with Sandra Locke that was released between 1970 and 1980." Upon activation of the ARE, the ARE determines all action or adventure movies that satisfy these criteria. The ARE permits a user to define complex statements defining the user's preferences. A particular advantage is that the user may include and exclude certain criteria.

[0037] In one embodiment, the programs determined by the ARE are presented to the user as a menu from which the user may select a program for watching as a "live" program or for recording. If the user decides to record a program, the digital video recorder **16** records the selected program. The A/V apparatus **3** and the digital video recorder **16** may be set up to automatically record program determined by the ARE. Details of an exemplary digital video recorder are disclosed in copending U.S. patent application Ser. No. 09/585,249, filed on May 31, 2000 and entitled "Digital Video Recorder Connectable To An Auxiliary Interface Of A Set-Top Box That Provides Video Data Stream To A Display Device Based On Selection Between Recorded Video Signal Received From The Digital Video Recorder And A Real-Time Video Signal," the whole content of which is incorporated by reference herewith.

[0038] FIG. 4 shows an embodiment of a menu **70** displayable on the audio/video device **6** and permitting a user to set up an attribute script. The exemplary menu includes submenus for "GENRE"**74**, "CRITICAL RATING"**78**, "PREFERRED"**80**, "NON-PREFERRED"**84**, "CHANNEL"**82**, "ERA"**86** and "MPAA RATING"**83**. The submenu for "GENRE"**74** shows options for the genre as boxes **76** a user can check to select a particular genre (e.g., action and adventure). The submenu "CRITICAL RATING"**78** allows the user to define the minimum number of stars a movie must have to be included in the list, wherein five stars are the highest rating and indicate that the movie has received good reviews. The submenu "MPAA RATING"**83** allows the user to restrict movies by audience categories, e.g., maturity rating as suggested by the Motion Picture Association of America (MPAA). The MPAA movie rating system suggests a suitable audience for a movie using the categories "G,""PG,""PG-13,""R,""NC-17" (e.g., G indicates that all ages are admitted). The submenus "PREFERRED"**80** and "NON-PREFERRED"**84** allow the user to type in titles and the names of actors and directors. As illustrated, the user may also define the channels and the era, e.g., between 1930 and 1939.

[0039] In the illustrated embodiment, each user may set up multiple attribute scripts. For example, the user may define attribute scripts for particular days of a week or for particular seasons of year. Further, the user may set up an attribute

script for particular genres such as one attribute script for adventure movies with preferred and non-preferred actors, and other attribute scripts for news and comedies.

[0040] FIG. 5 shows another embodiment of a menu 90 that includes submenus for "TO DO"92, "GENRE"94, "ROLE"96, "NAME 1"98 and "NAME 2"99. The submenus are roll-down menus that list the available selection in this menu 90 and that are known in the art. FIG. 5 shows the user's selections in bold for illustrative purposes. For example, the submenu "GENRE"94 lists Action, Drama, Comedy, Western, Adult, Cartoons, from which the user select the genre Action.

[0041] The submenus are connected through terms that assist a user to set up the attribute script. The ARE of the preference module 8 interprets the illustrated attribute script as "Record all action movies with Clark Gable as actor and without Katherine Hepburn as actress."

[0042] It is contemplated that the menus 70, 90 are shown for illustrative purposes as examples for graphical user interfaces. However, those skilled in the art will appreciate that the menus may be implemented in a variety of ways. The source 10 obtains the user-defined criteria through the attribute script independent from what particular graphical user interface is implemented.

[0043] The viewer controls the A/V apparatus 3, the audio/video device 6, the digital video recorder 14, or all three devices through the remote control 14. As illustrated in FIG. 3 by way of example, the remote control 14 communicates with these devices (3, 6, 16) via a wireless link that conveys control signals using infrared (IR) light. Remote controls and their various functions are generally known in the art. In particular, it is known that IR light is modulated with a specific command, e.g., channel up or down, volume up or down, select a function, and the like, and that the controlled device detects and processes the modulated IR light to execute the command in the controlled device. The remote control 14 may have an alphanumeric keyboard to permit the user to input, for example, the names of actors or the titles of moves. Alternatively, a keyboard or a PC mouse may be connectable to at least one of the devices (3, 6, 16) to serve as an input device.

[0044] Those skilled in the art will appreciate that the functionalities of the A/V apparatus 3 and the digital video recorder 16 may be integrated into one housing and that, for example, the disk 18 may have storage locations that serve as the memory 4 and the source 10.

What is claimed is:

1. A method of selecting programs from a plurality of programs, comprising:

accessing a first database that includes program information describing the plurality of programs through program attributes;

obtaining user-defined criteria identifying preferred program attributes and non-preferred program attributes; and

sorting through the first database to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

2. The method of claim 1, further comprising presenting the program to the user for selection.

3. The method of claim 1, further comprising recording the program for deferred selection by the user.

4. The method of claim 1, further comprising receiving a user input to modify the user-defined attributes.

5. The method of claim 1, wherein said sorting involves applying a logical AND and a logical NOT to the program attributes.

6. The method of claim 1, wherein the program attributes and the user-defined attributes are selected from a group that includes channel, actor, director, title, genre, language, critical rating, callsign, play content, maturity rating, multi-part format and seasonal content.

7. The method of claim 1, further comprising repeatedly sorting through the first database.

8. The method of claim 1, further comprising updating the program information of the first database.

9. The method of claim 8, further comprising repeatedly sorting through the first database including updated program information.

10. The method of claim 1, wherein the user-defined attributes are obtained from a second database.

11. The method of claim 10, wherein the second database stores multiple sets of user-defined attributes for multiple users.

12. The method of claim 10, wherein the second database stores multiple sets of user-defined attributes for a user.

13. The method of claim 1, wherein the user-defined attributes are obtained from an input device under control of the user.

14. An audio/video apparatus for selecting programs from a plurality of programs, comprising:

a memory to receive and to store program information describing a plurality of programs through program attributes;

a source of user-defined criteria, wherein the user-defined criteria identify preferred program attributes and non-preferred program attributes; and

a preference module configured to sort through the program information to determine a program having program attributes that include the preferred program attributes and exclude the non-preferred program attributes.

15. The apparatus of claim 14, further comprising a graphical user interface for presenting the program to a user for selection.

16. The apparatus of claim 15, wherein the graphical user interface is configured to receive a user input to modify the user-defined attributes.

17. The apparatus of claim 15, wherein the graphical user interface is configured to receive a user input to select the program.

18. The apparatus of claim 14, further comprising a storage device configured to record the program for deferred selection by a user.

19. The apparatus of claim 18, wherein the preference module is configured to initiate automatic recording of the program determined by the preference module.

20. The apparatus of claim 18, wherein the preference module is configured to initiate recording of the program upon the user selecting the program determined by the preference module.

21. The apparatus of claim 14, wherein the preference module applies a logical AND and a logical NOT to the program attributes.

22. The apparatus of claim 14, wherein the user-defined attributes and the program attributes are selected from a group including channel, actor, director, title, genre, language, critical rating, callsign, play content, maturity rating, multi-part format and seasonal content.

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